



PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant: Mathias et al.

Group Art Unit: 1745

Examiner: Helen O. Chu

Title: Diffusion Media For Use In a Pem Fuel Cell

Attorney Docket: GP-301332 (8540G-000091)

Commissioner for Patents
P.O. Box 1450
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Pre-Appeal Brief Request for Review

Sir:

Applicants request review of the final Office Action mailed November 28, 2006 in the above identified Application. This request is filed along with a Notice of Appeal.

Claims 1-10 are finally rejected and claims 11-25 withdrawn. The sole remaining issue in the present case is the 35 USC § 102 rejection based on Denton et al. (US Patent 6,010,606). Applicants respectfully submit that when the features in issue ("rigid" and "dimensionally stable") are properly interpreted in view of the present disclosure and the Denton disclosure, the claims are not anticipated by Denton.

1. Interpretation of Claim 1 Diffusion Media – “rigid along a transverse axis”

Claim 1 and its dependent claims 2-10 include a permeable diffusion media that is rigid along a transverse axis and flexible along a lateral axis. The primary basis for construing a claim term is the specification, which is followed by extrinsic evidence, such as dictionaries, if necessary. *Phillips v. AWH Corporation*, No. 03-1269 (Fed. Cir. July 12, 2005) (en banc). Looking to the present specification, the rigid transverse axis (x-direction) crosses flow channels on the electrode plate, and, as shown in FIG. 2, the flexible lateral axis (y-direction) can be parallel to the flow channels. The flexible lateral axis makes the permeable diffusion media easily rollable while the rigid transverse axis exhibits a high modulus of elasticity (MOE) that, as shown in FIG. 3, reproduced below, prevents the diffusion media 32 from impinging into the flow channels 20 or pulling away from its respective catalyst layer 28, 30. Paragraphs [0008], [0021], [0024], [0025] and [0029].

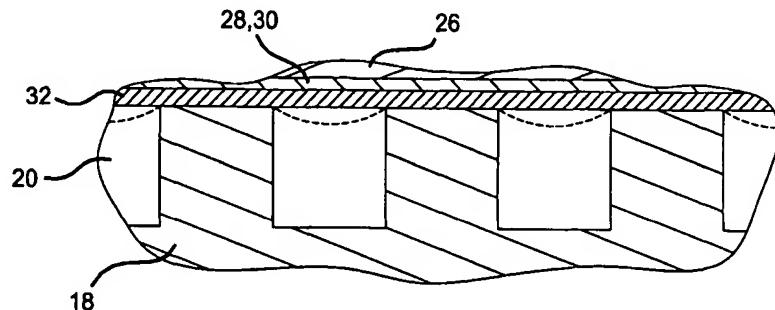


Figure 2

The stippled lines sagging into the channels 20 in FIG. 3 show what would happen in the case where the media does not have a rigid transverse axis.

In sum, claim 1 is drawn to a permeable diffusion media that is rigid along a transverse axis, where “rigid” has its typical meaning of stiff or unbending.

2. Interpretation of Denton Diffusion Media – “flexible” & “dimensionally stable”

In contrast to the present invention, the Denton reference teaches a gas diffusion electrode that is highly flexible and “dimensionally stable.” Denton col. 4, lines 32-35; col. 3, lines 7-9. Notably, there is no directionality linked to the flexibility of the gas diffusion electrode in Denton; the Denton electrode appears to be highly flexible regardless of axis. Nowhere does Denton differentiate any physical properties between a transverse and a lateral axis of the electrode.

The Denton electrode is also referred to as “dimensionally stable.” “Dimensionally stable” refers to the resistance of the electrode to linear dimensional change, for example, due to stretching. In fact, Denton recognizes a major problem with conventional gas diffusion electrodes based on woven cloth substrates is that they lack good *dimensional stability* as the cloth can be *stretched* in the x and y directions. Denton col. 2, lines 56-60. Another problem is that conventional electrodes lack flexibility due to the rigid substrate that is typically used. Denton col. 2, lines 50-55. Denton’s solution to these two problems is a flexible electrode resistant to stretching.

Thus, “dimensional stability,” as used in Denton, means that the electrode is resistant to stretching. It has nothing to do with rigidity. To wit, a piece of paper is an example of a “highly flexible” and “dimensionally stable” material – it can be rolled or bent anywhere along its planar surface, as it is highly flexible, but, it cannot be stretched within its planar surface. However, a piece of paper is not rigid. Consequently, the statement on pages 4 to 5 of the Office Action mailed November 28, 2006 that “if one cannot easily stretch an object it would stable [sic]” is correct, but it has nothing to do with rigidity.

Moreover, without any differentiation between a rigid axis and a flexible axis, as in the present claims, the Denton electrode cannot be both flexible and rigid at the same time. Denton does not teach a material that exhibits flexibility in one direction and rigidity in another direction. It is only the present invention and claims that characterize a material having a rigid transverse axis and a flexible lateral axis.

3. It is improper to import terms from the Lawheed reference

There is no ambiguity regarding the definition of “dimensionally stable” in Denton. Denton clearly uses “dimensionally stable” to refer to a material’s resistance to stretching. As such, there is no reason to import alternative meanings for “dimensionally stable” from other references. MPEP 2111.01; *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250, 48 USPQ2d 1117, 1122 (Fed. Cir. 1998) (“Where there are several common meanings for a claim term, the patent disclosure serves to point away from the improper meanings and toward the proper meanings.”); and see *Phillips v. AWH Corporation*, No. 03-1269 (Fed. Cir. July 12, 2005) (en banc).

4. Denton does not anticipate Claim 1

Present claims 1-10 are drawn a permeable diffusion media that is rigid along a transverse axis crossing the channels of the flow field. Denton is silent as to this feature and therefore cannot anticipate claims 1-10.

5. Conclusion

It is believed that all of the stated grounds of rejection have been properly traversed. Applicants therefore respectfully request review and withdrawal of the

presently outstanding rejection. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believe that personal communication will expedite prosecution of this application, she is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: March 26, 2007

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